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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/804,067	03/19/2004	Naohiro Toda	250758US0	8252

22850 7590 06/11/2007

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EXAMINER	
RODEE, CHRISTOPHER D	
ART UNIT	**PAPER NUMBER**
1756	

NOTIFICATION DATE	DELIVERY MODE
06/11/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/804,067	TODA ET AL.	
	Examiner	Art Unit	
	Christopher RoDee	1756	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 May 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10 and 12-26* is/are pending in the application.

4a) Of the above claim(s) *19* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10,12-18 and 20-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

The amendment filed 29 May 2007 has been entered and the previously applied rejection under section 102 is withdrawn because the claims rejected under this section of code have been canceled. New art has been discovered applicable to the instant claims and a rejection on the art follows. Prosecution on the merits resumes and the Finality of the Office action of 27 May 2006 is withdrawn.

Election/Restrictions

Applicant's election of claims 1-10, 12-18, and 20-26 in the reply filed on 26 May 2006 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-6, 8-10, 12, 17, 18, and 20-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishii *et al.* in US Patent Application Publication 2002/0064721 in view of Yanus *et al.* in US Patent 4,806,443.

Ishii discloses an electrophotographic photoconductor comprising an aluminum drum support having a ten-point surface roughness (Rz) of from 1.2 μm to 3.0 μm (Abstract; ¶ [0032]).

A charge generation layer and a charge transport layer are on the support (Abstract) and in some embodiments a surface protection layer is also present (¶¶ [0074] – [0076]). An underlayer is disclosed by the reference example but the disclosure teaches that this layer is optional (¶ [0077]). Example 1 shows a specific photoreceptor having a support with Rz of 1.3 μm. This photoreceptor also has a charge generation from formed from a gallium phthalocyanine and S-LEC BX-1 polyvinylbutyral resin, which has a Mw/Mn ratio of 3.1 and Mn of 120,000. This layer has a thickness of 0.25 μm. Because the layer has a thickness of 0.25 μm it appears that the diameter of the gallium phthalocyanine particles would be 0.25 μm or less because the particles would not be larger than the layer itself. The average particle diameter of the phthalocyanine in Ishii is less than the surface roughness of the support. A charge transport layer is formed on the charge generation layer. This layer contains a bisphenol-Z polycarbonate resin and a mixture of amine compounds as the hole transport materials. Polycarbonates are disclosed in the specification as a preferred binder resin for the charge transport layer (spec. p. 35, l. 6-8) while amines and stilbene compounds are disclosed as preferred charge transport compounds (spec p. 34).

Example 13 discloses a similar photoconductor to that of Example 1 except that a titanylphthalocyanine charge generation material was used and the charge generation layer has a thickness of 0.3 μm (¶ [0147). Because the layer has a thickness of 0.3 μm it appears that the diameter of the titanyl phthalocyanine particles would be 0.3 μm or less because the particles would not be larger than the layer itself. The average particle diameter of the phthalocyanine in Ishii is less than the surface roughness of the support and appears to have an XRPD as seen in Figure 4.

The photoconductor of the reference is placed in an imaging apparatus provided with a process cartridge having the electrophotographic photosensitive member (¶¶ [0081] – [0087];

Fig. 3). In the Figure reference numeral **21** denotes a drum type electrophotographic photosensitive member of the present invention, which is driven around an axis **22** in the direction of an arrow at a stated peripheral speed. The electrophotographic photosensitive member **21** is, in the course of its rotation, uniformly electrostatically charged on its periphery to a positive or negative, given potential through a primary charging means **23**, which appears from the Figure to contact the photosensitive member. The electrophotographic photosensitive member thus charged is then exposed to exposure light **24** emitted from an exposure means (not shown) for slit exposure or laser beam scanning exposure and intensity-modulated correspondingly to time-sequential digital image signals of the intended image information. In this way, electrostatic latent images corresponding to the intended image information are successively formed on the periphery of the electrophotographic photosensitive member **21**. The electrostatic latent images are subsequently developed by toner by the operation of a developing means **25**. The toner images thus formed and held on the surface of the electrophotographic photosensitive member **21** are then successively transferred by the operation of a transfer means **26**, to a transfer medium **27** fed from a paper feed section (not shown) to the part between the electrophotographic photosensitive member **21** and the transfer means **26** in the manner synchronized with the rotation of the electrophotographic photosensitive member **21**. The photosensitive member **21** is cleaned of residual toner by a cleaning means **29**, shown as a blade in Figure 3.

Ishii does not disclose the polycarbonate having a triarylamine structure as specified in the instant claims and does not specify that the layer is formed by a halogen-free solvent, but Yanus teaches the charge transport layer of an imaging member usefully contains a compound of the formula shown in the Abstract. Useful arylamine groups are formed from reactants shown in column 7, and specific polycarbonate structures are shown in column 9. As seen in Example

IV, the charge transport layer is formed by dissolving the polymer in THF (a halogen-free solvent). Ishii teaches that the polycarbonate forms an effective charge transport layer because it protects the photoreceptor's photoconductive (i.e., charge generation) layer from abrasion and chemical attack (col. 17, l. 9-20). Specifically, the layer is effective against damage from a cleaning blade (col. 5, l. 19-22). An overcoat layer can be placed over the charge transport layer to aid further abrasion resistance (col. 18, l. 29-35).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the charge transport layer of Yanus as the charge transport layer in Ishii's photoreceptor because Ishii desires a charge transport layer as the surface layer of the imaging member and Yanus teaches an effective charge transport layer that resists abrasion damage from a cleaning blade. This layer also resists chemical damage. Clearly an advantage is to be gained by the artisan through the use of Yanus' charge transport layer in Ishii's imaging member.

Claims 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishii *et al.* in US Patent Application Publication 2002/0064721 in view of Yanus *et al.* in US Patent 4,806,443 as applied to claims 1-6, 8-10, 12, 18, and 20-23 above, and further in view of *Handbook of Imaging Materials*, 2nd ed. to Diamond, pp. 145-164.

Ishii and Endo were described above. The references disclose imaging apparatuses but fail to disclose the specific charging components of the instant claims. Diamond discloses the conventional imaging apparatus as having non-contact charging devices. These chargers are located across as air gap as seen in Figures 4.2 & 4.3. Further a superposed AC and DC voltage is conventional in the art (p. 150).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use conventional charging devices as discussed by Diamond because these devices are shown to be effective to give an effective charge to the surface of the photoreceptor for effective image formation. The artisan would also have found it obvious to optimize the air gap in order to provide effective charging of the imaging member's surface.

Double Patenting

Claims 1-10, 12-18 and 20-26 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 7-23, 28, and 29 of copending Application No. 10/606750 in view of Ishii *et al.* in US Patent Application Publication 2002/0064721. The copending application claims a photoreceptor that differs from the instant claims only in the characteristics of the polyvinylbutyral resin for the charge generation layer. Ishii discloses a commercially available polyvinyl butyral resin for a charge generation layer. The polyvinylbutyral is S-LEC BX-1, which has a Mw/Mn ratio of 3.1 and Mn of 120,000. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the commercially available polyvinyl butyral in the claims of the copending application as the resin because the artisan would have found it necessary to select a specific polyvinyl butyral resin to practice the invention of the copending claims and Ishii discloses an effective polyvinyl butyral resin for this purpose in the same field of endeavour.

This is a provisional obviousness-type double patenting rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher RoDee whose telephone number is 571-272-1388. The examiner can normally be reached on Monday to Thursday from 5:30 to 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Christopher RoDee/
Primary Examiner
Art Unit 1756

cdr
3 June 2007